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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,959

Applicant(s)

LADD ET AL.

Examiner

CHARLES E. ANYA

Art Unit

2194

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3/MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21-27 and 30-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-27 and 30-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-19, 21-27 and 30-46 are pending in this application.

Claim Objections

2. **Claims 12 and 38-45 are objected to because of the following informalities:**

Claim 12 appear to include typographical errors. Specifically, "(" on line 4 and "and" on line 16 seem to have been use in error.

Appropriate correction is required.

Abbreviations are used in claims 38-45, however the full meaning of the abbreviated words are not included in the claims.

For instance, the abbreviations (API, CPE, DVR and MSO) are used through out claims 38-45 without description of the full meaning of these abbreviations.

Abbreviations are allowed in claims, however it advisable to spell out the first occurrence of the abbreviation.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 26, 31 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following terms lack antecedent basis:

- i. "the middleware" on line 11 of claim 26.

The following terms are indefinite or unclear:

- ii. "substantially" on line 1 of claim 31 and line 12 of claim 43.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,552,450 B1 issued to Evans et al. in view of U.S. Pat. No. 7,487,534 B1 issued to Peterka et al.

5. As to claim 1, Evans teaches a method of operating client equipment (Computing Device 130) in operative communication with a content-based network (LAN 180/WAN 182), said client equipment comprising at least at least one hardware option and at least

one application running on said client equipment (Application 210 Col. 6 Ln. 20 – 43),
the method comprising:

providing at least one application programming interface (API) adapted to
interface with said at least one hardware option (Application 215 Col. 6 Ln. 20 – 31, Col.
10 Ln. 48 – 67);

starting said at least one application (“...application programming interface (API)
is provided to enable an application to communicate with digital media components
listed in the component register...” Col. 10 Ln. 48 – 67); and

selectively controlling said at least one hardware option using said application via
said API (“...application programming interface (API) is provided to enable an
application to communicate with digital media components listed in the component
register...” Col. 10 Ln. 48 – 67, Col. 14 Ln. 5 – 57).

Evans is silent with reference to discovering said at least one hardware option
and said at least one API using said application.

Peterka teaches discovering said at least one hardware option and said at least
one API using said application (“...ResourceRegistry is a convenient place where an
application can learn what types of resources are available, and retrieve a
ResourceType Manager for a specific type of resource...” Col. 2 Ln. 54 – 60, Col. 3 Ln.
11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8).

It would have been obvious to one of ordinary skill in the art at the time the
invention was made to modify the system of Evans with the teaching of Peterka
because the teaching of Peterka would improve the system of Evans by providing a

technique for getting knowledge of or learning of the availability of resources and thus making it easier to access the resources.

6. As to claim 13, Evans teaches an apparatus adapted for operation within a network, said apparatus comprising:

a processor (Processor 132);

a storage device operatively coupled to said processor (System Memory 134);

first software running on said processor and adapted to control at least one function within said apparatus (Application 210 Col. 6 Ln. 20 – 43, "...application programming interface (API) is provided to enable an application to communicate with digital media components listed in the component register..." Col. 10 Ln. 48 – 67, Col. 14 Ln. 5 – 57); and

at least one second software application on said processor (Application 215 Col. 6 Ln. 20 – 31, Col. 10 Ln. 48 – 67);

wherein said first software is configured to:

(a) maintain a registry of hardware options within said apparatus including storing data relating to said hardware options in said storage device ("...register database..." Col. 2 Ln. 17 – 28, "...Component Register..." Col. 7 Ln. 23 – 25, Ln. 63 – 67, Col. 8 Ln. 55 – 67) and

(b) provide access to said hardware options to said at least one second software application via a plurality of software interfaces ("...application programming interface (API) is provided to enable an application to communicate with digital media

components listed in the component register..." Col. 10 Ln. 48 – 67, Col. 14 Ln. 5 – 57);
and

wherein said data relating to said hardware options comprises information regarding individual ones of said plurality of software interfaces which may be used to access individual ones of said hardware options ("...Each entry in the component register..." Col. 2 Ln. 22 – 28, "...device's registration adds entries to the component register..." Col. 7 Ln. 22 – 25, Data Fields 512-520 Col. 8 Ln. 55 – 67, Col. 9 Ln. 1 – 9.

Evans is silent with reference to an apparatus adapted for operation within a cable network.

Peterka teaches an apparatus adapted for operation within a cable network ("...cable or satellite television broadband communication networks..." Col. 13 Ln. 30 – 35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Peterka because the teaching of Peterka would improve the system of Evans by providing a type of network bridge and modem that allows bi-directional data communication via radio frequency channels on a cable television (CATV) infrastructure and primarily delivers broadband Internet access in the form of cable Internet, thus taking advantage of the high bandwidth of cable television network.

7. As to claim 14, Evans teaches the apparatus of claim 13, further comprising a network interface operatively coupled to said processor ("...networked environment..." Col. 5 Ln. 32 – 44);

Peterka teaches said first software is further adapted to communicate with an external entity via said plurality of software interface (DAVIC NetworkInterfaceManager..." Col. 4 Ln. 26 – 29, Col. 5 Ln. 49 – 60, Col. 6 Ln. 55 – 59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Peterka because the teaching of Peterka would improve the system of Evans by providing hardware device that handles an interface to a computer network and allows a network-capable device to access that network.

8. As to claim 15, Evans teaches the apparatus of claim 13, wherein said processor comprises an embedded processor, and said storage device comprises an embedded memory (Computing Device 130 Col. 4 Ln. 50 – 67).

9. As to claim 16, Evans teaches the apparatus of claim 13, wherein said storage device comprises a hard disk drive (HDD) (Hard Disk Drive 144 Col. 4 Ln. 63 – 67, Col. 5 Ln. 1 – 31).

10. As to claim 17, Peterka teaches the apparatus of claim 13, wherein said network comprises a multi-channel distribution network of the hybrid fiber coax (HFC) type

("...cable plant..." Col. 1 Ln. 19 – 25, Col. 13 Ln. 30 – 35), and said at least one hardware option comprises Digital Video Recorder (DVR) functionality ("...tuner, modem...conditional access (CA) module..." Col. 2 Ln. 18 – 24, Col. 6 Ln. 54 – 62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Peterka because the teaching of Peterka would improve the system of Evans by providing a type of network bridge and modem that allows bi-directional data communication via radio frequency channels on a cable television (CATV) infrastructure and primarily delivers broadband Internet access in the form of cable Internet, thus taking advantage of the high bandwidth of cable television network.

11. As to claim 18, Peterka teaches the apparatus of claim 17, wherein said DVR functionality further comprising Personal Video Recorder (PVR) functionality ("...tuner, modem...conditional access (CA) module..." Col. 2 Ln. 18 – 24, Col. 6 Ln. 54 – 62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Peterka because the teaching of Peterka would improve the system of Evans by providing a device/software for converting RF television transmission into audio and video signals which can be further processed to produce sound and a picture.

12. Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,552,450 B1 issued to Evans et al. in view of U.S. Pat. No. 7,487,534

B1 issued to Peterka et al. as applied to claim 1 above, and further in view of PCT No. WO 00/24192 issued to Meandzija.

13. As to claim 2, Evans teaches the method of claim 1, wherein said act of providing at least one API comprises:

a hardware registry ("...register database..." Col. 2 Ln. 17 – 28, "...Component Register..." Col. 7 Ln. 23 – 25, Ln. 63 – 67, Col. 8 Ln. 55 – 67); and

disposing at least one entry associated with said at least one hardware option within said registry ("...Each entry in the component register..." Col. 2 Ln. 22 – 28, "...device's registration adds entries to the component register..." Col. 7 Ln. 22 – 25, Data Fields 512-520 Col. 8 Ln. 55 – 67, Col. 9 Ln. 1 – 9).

Evans as modified by Peterka is silent with reference to providing middleware having said at least one API.

Meandzija teaches providing middleware having said at least one API ("...middleware layer..." page 5 lines 21 – 24, Middleware 122 page 10 lines 13 – 15, STAMP Middleware Software 245 page 13 lines 8 – 22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Peterka with the teaching of Meandzija because the teaching of Meandzija would improve the system of Evans and Peterka by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

14. As to claim 3, Peterka teaches the method of claim 2, wherein said act of discovering said at least one option comprises accessing said hardware registry using a software function ("...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Meandzija with the teaching of Peterka because the teaching of Peterka would improve the system of Evans and Meandzija by providing a technique for getting knowledge of or learning of the availability of resources and thus making it easier to access the resources.

15. As to claim 4, Peterka teaches the method of claim 3, said content-based network comprising a multi-channel distribution network of the hybrid fiber coax (HFC) type ("...cable plant..." Col. 1 Ln. 19 – 25, Col. 13 Ln. 30 – 35), said client equipment comprises a digital set-top box ("...The terminal may be a DTV receiver, set-top-box..." Col. 2 Ln. 17 – 24) and said act of selectively controlling said at least hardware option comprises providing Digital Video Recorder (DVR) functionality ("...tuner, modem...conditional access (CA) module..." Col. 2 Ln. 18 – 24, Col. 6 Ln. 54 – 62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Meandzija with the teaching of

Wong because the teaching of Wong would improve the system of Evans and Meandzija by providing a type of network bridge and modem that allows bi-directional data communication via radio frequency channels on a cable television (CATV) infrastructure and primarily delivers broadband Internet access in the form of cable Internet, thus taking advantage of the high bandwidth of cable television network.

16. As to claim 5, Peterka teaches the method of claim 3, wherein said software function comprises a hardware registry interface object ("...an application programming interface (API) for a television terminal that provides a uniform mechanism for gain/controlling access to resources..." Col. 2 Ln. 11 – 16, Ln. 44 – 47, Col. 3 Ln. 41 - 46).

Meandzija teaches said middleware as being rendered in an object-oriented language ("...middleware layer..." page 5 lines 21 – 24, Middleware 122 page 10 lines 13 – 15, STAMP Middleware Software 245 page 13 lines 8 – 22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Peterka with the teaching of Meandzija because the teaching of Meandzija would improve the system of Evans and Peterka by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

17. As to claim 6, Evans teaches the method of claim 3, wherein said at least one entry comprises a plurality of entries relating to respective ones of said hardware options ("...Each entry in the component register..." Col. 2 Ln. 22 – 28, "...device's registration adds entries to the component register..." Col. 7 Ln. 22 – 25, Data Fields 512-520 Col. 8 Ln. 55 – 67, Col. 9 Ln. 1 – 9).

Peterka teaches said act of accessing comprises iteratively searching said hardware registry to discover each of said plurality of entries ("...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Meandzija with the teaching of Peterka because the teaching of Peterka would improve the system of Evans and Meandzija by providing a technique for getting knowledge of or learning of the availability of resources and thus making it easier to access the resources.

18. As to claim 7, Evans teaches the method of claim 6, wherein said plurality of entries relate to different hardware options of the same general type ("...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8), and said act of iteratively searching comprises using a name convention to selectively

access individual ones of said different hardware options (“...the component register is searched for a component with a capabilities list having all the required capabilities identified in the “RequiredCapabilities” field of the selected profile. In an exemplary implementation, the capabilities register may be searched for entries having GUIDs...” Col. 14 Ln. 30 – 38).

19. As to claim 8, Evans teaches a method of operating Consumer Premise equipment (CPE) (Computing Device 130) within a content-based network (LAN 180/WAN 182), said CPE comprising a plurality of optional hardware features (“...register database...” Col. 2 Ln. 17 – 28, “...Component Register...” Col. 7 Ln. 63 – 67), and the method comprising:

disposing an application onto said CPE (Application 210 Col. 6 Ln. 20 – 43); and
running said application to:

(ii) access at least one of said hardware features via at least one of said plurality of APIs (Application 210 Col. 6 Ln. 20 – 43, Operation 718 Col. 14 Ln. 30 – 38).

Evans is silent with reference to middleware adapted to communicate with said hardware features via a plurality of Application Programming Interfaces (APIs) and (i) discover said hardware registry, said plurality of entries and said plurality of APIs.

Peterka teaches (i) discover said hardware registry, said plurality of entries and said plurality of APIs (“...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager

for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Peterka because the teaching of Peterka would improve the system of Evans by providing a technique for getting knowledge of or learning of the availability of resources and thus making it easier to access the resources.

Meandzija teaches middleware adapted to communicate with said hardware features via a plurality of Application Programming Interfaces (APIs) ("...middleware layer..." page 5 lines 21 – 24, Middleware 122 page 10 lines 13 – 15, STAMP Middleware Software 245 page 13 lines 8 – 22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Peterka with the teaching of Meandzija because the teaching of Meandzija would improve the system of Evans and Peterka by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

20. As to claim 9, Meandzija teaches the method of claim 8, wherein said middleware comprises a trusted application rendered in an object-oriented language ("...STAMP provides...secure controlled access of resources..." page 9 lines 17 – 25, "...Conditional Access API..." page 22 lines 25 – 28, "...said API enables said terminal

to secure controlled access of resources..." page 55 claim 8) and said at least one of said hardware features is accessed by making calls to objects of said middleware adapted to particularly access said hardware registry ("...Resource Manager provides access to all set top resources through a variety of resources specific APIs..." page 16 lines 10 – 13, ResourceRegistry 355 page 18 lines 15 – 19, page 24 lines 9 - 30, page 25 lines 1 – 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Peterka with the teaching of Meandzija because the teaching of Meandzija would improve the system of Evans and Peterka by providing protection of content by requiring certain criteria to be met before granting access to this content.

21. As to claim 10, Peterka teaches the method of claim 8, wherein said act of disposing comprises providing retail CPE having said application already installed thereon ("...The applications may be downloaded by terminals via a network, loaded locally...or installed at the time of manufacture..." Col. 1 Ln. 35 - 37, Col. 2 Ln. 33 – 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans and Meandzija with the teaching of Peterka because the teaching of Peterka would improve the system of Evans and Meandzija by eliminating the burden of installing software application on a set-top-box by a user.

22. As to claim 11, Evans teaches the method of claim 8, further comprising controlling, via said application, said at least one hardware feature (Application 210 Col. 6 Ln. 20 – 43, Operation 718 Col. 14 Ln. 30 – 38).

23. Claims 12, 41-43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. Peterka et al. in view of U.S. Pat. No. 7,058,964 B2 issued to Khandelwal et al.

24. As to claim 12, Peterka teaches a Third party Premise equipment (CPE) adapted for use within a content-based network ("...terminal..."), said CPE comprising:

a plurality of proprietary and optional hardware features selected from the group consisting of: (i) digital video recorder (DVR) features, and digital video interface (DVI) features ("...e.g., tuner, modem...cable...network interface card...conditional access (CA) module..." Col. 2 Ln. 17 – 24, Ln. 64 – 67, Col. 6 Ln. 55 – 62);

a software application ("...downloadable applications..." Col. 3 Ln. 46 – 48, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8); and

a hardware registry having a plurality of entries associated therewith and relating to respective ones of said hardware features ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13);

wherein said CPE is further adapted to:

run said software application (“...access/use one or more of the available resources...” Col. 2 Ln. 57 – 60, Col. 3 Ln. 1 – 3, Col. 6 Ln. 1 – 8);

discover said hardware registry, said plurality of entries and said plurality of APIs (“...an application can learn what types of resources are available...” Col. 2 Ln. 55 – 57, Col. 3 Ln. 23 – 25;

access at least one of said proprietary and optional hardware features via at least one of said APIs (“...access/use one or more of the available resources...” Col. 2 Ln. 57 – 60, Col. 3 Ln. 1 – 3, Col. 6 Ln. 1 – 8) and

selectively control said at least one hardware feature using said software application (“...access/use one or more of the available resources...” Col. 2 Ln. 57 – 60, Col. 3 Ln. 1 – 3, Col. 6 Ln. 1 – 8).

Peterka is silent with reference to an OpenCable (OCAP) complaint middleware adapted to communicate with said software application and said hardware features via a plurality of Application Programming Interfaces (APIs) and wherein said the CPE is configured to be utilized within a multiple systems operators (MSO) network and receive said software application via download from said network after installation of said CPE with a consumer premises.

Khandelwal teaches an OpenCable (OCAP) complaint middleware adapted to communicate with said software application and said hardware features via a plurality of Application Programming Interfaces (APIs) (“...OpenCable is a standard has been defined...using a common platform...” Col. 2 Ln. 49 – 52, Col. 2 Ln. 1 – 11, “...OpenCable standards define a resource manager (RM) that manages system

resources such as tuning, audio/video decodings, graphics plane and background devices..." Col. 2 Ln. 49 – 52) and wherein said the CPE is configured to be utilized within a multiple systems operators (MSO) network and receive said software application (Applications 192) via download from said network after installation of said CPE with a consumer premises (figures 3/4A (Cable Provider (MSO) 120) Col. 4 Ln. 58 – 67, Col. 5 Ln. 1 – 18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Khandelwal because the teaching of Khandelwal would improve the system of Peterka by providing a standard that are defined by cable operators to provide digital cable ready devices using a common or portable platform (Khandelwal Col. 1 Ln. 49 – 51).

25. As to claim 41, Peterka teaches a method of operating a consumer electronics device ("...terminal...") and a hard drive in data communication with said middleware ("...computer readable medium..."), comprising:

disposing a hardware registry having at least one Digital Video Recorder (DVR) functionality record disposed therein, said at least one record further identifying at least one Application Programming Interface (API) for interface with said DVR functionality ("...ResourceRegistry..." Col. 2 Ln. 55 – 60, "...API..." Col. 3 Ln. 1 – 3, Ln. 41 – 45, ResourceRegistry 100 Col. 4 Ln. 22 – 25, Col. 6 Ln. 1 – 8); and

controlling said DVR functionality via said at least one API so as to record at least a portion of content streamed to said electronics device from an external source

on said hard drive (“...possibly access/use one or more of the available resources...”

Col. 2 Ln. 57 – 60: NOTE: accessing and using the functionalities of the tuner, modem, database, cable, network interface card etc. including the recording of streamed content).

Peterka is silent with reference to a consumer electronics device having a middleware, providing two or more applications adapted to run on said consumer electronics device and in conjunction with said middleware, receiving contending requests for accessing said registry from said two or more applications, resolving said contending requests, thereby enabling one of said two or more applications to access said registry at a time.

Khandelwal teaches a consumer electronics device having a middleware (“...OpenCable is a standard has been defined...using a common platform...” Col. 2 Ln. 49 – 52, Col. 2 Ln. 1 – 11, “...OpenCable standards...” Col. 2 Ln. 49 – 52), providing two or more applications adapted to run on said consumer electronics device and in conjunction with said middleware (“...host applications...” Col. 5 Ln. 8 – 10, Applications 192 Col. 6 Ln. 17 – 27), receiving contending requests for accessing said registry from said two or more applications (“...MSO...” Col. 5 Ln. 8 – 10, Resource Manager 180 Col. 6 Ln. 17 – 27), resolving said contending requests, thereby enabling one of said two or more applications to access said registry at a time (“...resolves the resource contention...” Col. 3 Ln. 13 – 16, “...resolve resource contention...” Col. 5 Ln. 8 – 10, Col. 6 Ln. 17 – 27, figure 7 Col. 7 Ln. 28 – 57, figure 9 Col. 8 Ln. 20 – 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Khandelwal because the teaching of Khandelwal would improve the system of Peterka by providing a technique for resolving contention for resources between applications (Khandelwal Col. 6 Ln. 17 – 27).

26. As to claim 42, Peterka teaches the method of claim 41, wherein said act of accessing said hardware registry comprises (i) discovering said hardware registry (“...an application can learn what types of resources are available...” Col. 2 Ln. 55 – 57, Col. 3 Ln. 23 – 25); (ii) accessing said hardware registry to identify said at least one DVR record (“...access/use one or more of the available resources...” Col. 2 Ln. 57 – 60, Col. 3 Ln. 1 – 3, Col. 6 Ln. 1 – 8); and (iii) accessing said at least one DVR record to identify said at least one API (Class 420/Class 430 Col. 5 Ln. 41 – 55).

27. As to claim 43, Peterka teaches in a cable network, a method of operating consumer premises device (“...terminal...”), and a hard drive (“...computer readable medium...”), a hardware registry having a DVR functionality record identifying an API for interface with said DVR functionality (“...ResourceRegistry...” Col. 2 Ln. 55 – 60, “...API...” Col. 3 Ln. 1 – 3, Ln. 41 – 45, ResourceRegistry 100 Col. 4 Ln. 22 – 25, Col. 6 Ln. 1 – 8), the method comprising:

providing from said cable network a DVR-based application adapted to run on said device (“...downloadable applications...” Col. 3 Ln. 46 – 48, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8);

accessing said hardware registry using said application to identify said API (“...access/use one or more of the available resources...” Col. 2 Ln. 57 – 60, Col. 3 Ln. 1 – 3, Col. 6 Ln. 1 – 8);

selectively controlling said DVR functionality via said API so as to store at least a portion of first entertainment content provided to said device on said hard drive for subsequent use by a consumer (“...possibly access/use one or more of the available resources...” Col. 2 Ln. 57 – 60: NOTE: accessing and using the functionalities of the tuner, modem, database, cable, and network interface card etc. including the recording of streamed content) and

wherein said consumer premises device comprises a device not associated with said cable network (“...terminal...” Col. 1 Ln. 19 – 34, Col. 2 Ln. 17 – 18), and said act of controlling is performed substantially by said cable network-provided application (“...downloadable applications...” Col. 3 Ln. 46 – 48, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8: NOTE: the downloadable applications are downloaded over a cable network to a receiver or set-top box that is not part of cable network).

Peterka does not explicitly teach consumer premises device having middleware and application adapted to run on said device and in conjunction with said middleware.

Khandelwal teaches consumer premises device having middleware (“...OpenCable is a standard has been defined...using a common platform...” Col. 2 Ln.

49 – 52, Col. 2 Ln. 1 – 11, "...OpenCable standards define a resource manager (RM) that manages system resources such as tuning, audio/video decodings, graphics plane and background devices..." Col. 2 Ln. 49 – 52) and application adapted to run on said device and in conjunction with said middleware ("...OpenCable is a standard has been defined...using a common platform..." Col. 2 Ln. 49 – 52, Col. 2 Ln. 1 – 11, "...OpenCable standards define a resource manager (RM) that manages system resources such as tuning, audio/video decodings, graphics plane and background devices..." Col. 2 Ln. 49 – 52).

It would have been to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Khandelwal because the teaching of Khandelwal would improve the system of Peterka by providing a Java-based middleware that resides on advanced cable television set-top boxes and brings two-way interactive services to cable customer.

28. As to claim 45, Peterka teaches a method of operating a cable network and a CPE coupled thereto ("...terminal..." Col. 1 Ln. 19 – 34, Col. 2 Ln. 17 – 18), the method comprising:

configuring said CPE with one or more non-standardized hardware options ("...e.g., tuner, modem...cable...network interface card...conditional access (CA) module..." Col. 2 Ln. 17 – 24, Ln. 64 – 67, Col. 6 Ln. 55 – 62);

disposing entries relating to said one or more options within a hardware registry associated with said CPE, said entries having at least one standardized interface

associated therewith (“...ResourceRegistry...” Col. 2 Ln. 55 – 60, “...API...” Col. 3 Ln. 1 – 3, Ln. 41 – 45, ResourceRegistry 100 Col. 4 Ln. 22 – 25, Col. 6 Ln. 1 – 8).

Peterka is silent with reference to method of operating a cable network having an MSO (MSO 120) and a plurality of CPE (Set Top Box 102-1/Integrated TV 102-2/Host 102-3/Host 102n) coupled thereto (figures 1-4A) and operating an MSO application on said CPE, said MSO application accessing said one or more non-standardized options via said standardized interface (“...OpenCable standards define resource manager (RM)...” Col. 2 Ln. 49 – 54, Resource Manager 180 Col. 6 Ln. 17 – 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system Peterka with the teaching of Khandelwal because the teaching of Wong Khandelwal would improve the system of Khandelwal by providing a Java-based middleware that resides on advanced cable television set-top boxes and brings two-way interactive services to cable customer.

29. As to claim 46, Khandelwal teaches the method of claim 41, wherein said act of resolving said contending requests comprises utilizing at least one of: a round-robin system, a priority based system, and/or a collision detection and back-off system (“...resolves the resource contention...” Col. 3 Ln. 13 – 16, “...resolve resource contention...” Col. 5 Ln. 8 – 10, Col. 6 Ln. 17 – 27, figure 7 Col. 7 Ln. 28 - 57, figure 9 Col. 8 Ln. 20 – 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Khandelwal

because the teaching of Khandelwal would improve the system of Peterka by providing a technique for resolving contention for resources between applications (Khandelwal Col. 6 Ln. 17 – 27).

30. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0009769 A1 to Hensgen et al. in view of U.S. Pat. No. 7,487,534 B1 issued to Peterka et al.

31. As to claim 19, Hensgen teaches a fault-tolerant Consumer Premises Equipment (CPE) (Receiver 112) adapted for coupling to a cable network (figure 1), said CPE having a monitor application running thereon (Trusted/Privileged Application-Level Resource Advisor page 2 paragraphs 0014/0015, Trusted Application Level Resource Advisor 450 page 7 paragraph 0078), said monitor application being adapted to

(i) detect at least one event relating to the operation of one or more software applications running thereon (“...detect certain events...” page 2 paragraphs 0014/0015, Event 540 page 8 paragraph 0085, Block 708 page 9 paragraphs 0089/0095);

(ii) selectively log data relating to said at least one event for subsequent use (Resource States 702 page 9 paragraphs 0091/0095);

(iii) enable at least one external network entity to control the operation of said CPE based at least in part on said at least one detected event (“...notifying a head-end server or load balancer...” page 10 paragraphs 0103/0104/0108).

Hensgen is silent with reference to (iv) provide a hardware registry accessible by said one or more software applications whereby said one or more software applications can selectively access and control at least one optional hardware feature of said CPE via a plurality of software interfaces.

Peterka teaches a hardware registry accessible by said one or more software applications ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13) and one or more software applications that selectively access and control at least one optional hardware feature of said CPE via a plurality of software interfaces ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Hensgen with the teaching of Peterka because the teaching of Peterka would improve the system of Hensgen by providing a layer of glue software that that uniformly gain access and manage hardware resources in a registry (Peterka Col. 3 Ln. 41 – 45).

32. As to claim 21, Hensgen teaches the CPE of Claim 20, wherein said event comprises a resource depletion event ("...resource contention problem..." page 2 paragraph 0014, "...exclusive control of a resource..." page 8 paragraph 0085), and said act of controlling the operation of said CPE comprises selectively suspending or

destroying at least one of said software applications in order to mitigate said resource depletion (“...terminating a currently executing process...” page 10 paragraph 0099).

33. Claims 22 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,487,534 B1 issued to Peterka et al. in view of U.S. Pub. No. 2004/0003400 A1 to Carney et al.

34. As to claim 22, Peterka teaches a method of operating a cable network having a client device operatively coupled thereto (“...the invention is suitable for use with virtually any type of network, including cable...network...” Col. 13 Ln. 30 – 35), the method comprising:

distributing at least one software application to said client device
 (“...downloadable applications...” Col. 3 Ln. 46 – 49, Col. 4 Ln. 23 – 25);

providing at least one software interface within said client device, said software interfaces being configured to interface between said at least one software application and at least one of said plurality of optional hardware (“...application programming interface (API)...” Col. 1 Ln. 11 – 17, Col. 2 Ln. 11 – 50);

running said at least one software application (“...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource...” Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8);

discovering said at least one hardware registry and said at least one software interface with said at least software application ("...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8) and

responsive to said discovering, controlling said at least one hardware option using said application and said at least one interface ("...ResourceRegistry is a convenient place where an application can learn what types of resources are available, and retrieve a ResourceType Manager for a specific type of resource..." Col. 2 Ln. 54 – 60, Col. 3 Ln. 11 – 14, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8).

Peterka is silent with reference to operating a cable network having a plurality of client devices and distributing at least one software application to each of said plurality of client devices.

Carney teaches operating a cable network ("...cable..." page 4 paragraph 0050) having a plurality of client devices ("...differing headend and/or set top box systems..." page 3 paragraph 0047, "...multiple different types of set-top boxes 16..." page 4 paragraphs 0049/0051/0052) and distributing at least one software application to each of said plurality of client devices ("...Different ACs 14 may be targeted for different set-top boxes 16..." page 4 paragraph 0049).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Carney because the teaching of Carney would improve the system of Peterka by providing

multiple master facilities for receiving television signals for processing and distribution over a cable television system.

35. As to claim 30, Peterka teaches a method of conducting business via a cable network having a client device operatively coupled thereto ("...terminal may be a DTV receiver, set-top box..." Col. 2 Ln. 17 – 19), said client devices each having at least one hardware registry containing data relating to a plurality of hardware features ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13) and software interfaces using the same ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13), the method comprising:

- distributing at least one software application to said client device ("...applications may be downloaded by terminals Col. 1 Ln. 35 – 42, Col. 3 Ln. 47 – 49, Col. 4 Ln. 23 – 25);
- running said at least one software application on said client device ("...application can learn what types of resources are available and retrieve..." Col. 2 Ln. 55 – 60, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8);
- discovering said at least one hardware registry and said software interface with said software application ("...application can learn what types of resources are available and retrieve..." Col. 2 Ln. 55 – 60, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8);
- selectively accessing, via said hardware registry, individual ones of said plurality of hardware features which are standardized ("...an application can determine how

many, and which, resources are available, and possibly access/use one or more of the available resources..." Col. 2 Ln. 58 – 60, Col. 3 Ln. 1 – 14, Ln. 41 – 45, Col. 6 Ln. 1 – 8); and

controlling at least one of said hardware features using said software application ("...possibly access/use one or more of the available resources..." Col. 2 Ln. 58 – 60).

Peterka is silent with reference to conducting business via a cable network having a plurality of client devices and distributing at least one software application to said plurality of client devices.

Carney teaches conducting business via a cable network having a plurality of client devices ("...network (e.g., cable and/or satellite) head end 22..." page 4 paragraph 0050) and distributing at least one software application to said plurality of client devices ("...Different ACs 14 may be targeted for different set-top boxes 16..." page 4 paragraphs 0049/0051/0052).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Carney because the teaching of Carney would improve the system of Peterka by providing multiple master facilities for receiving television signals for processing and distribution over a cable television system.

36. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2004/0003400 A1 to Carney et al. in view of PCT No. WO 00/24192 issued to Meandzija.

37. As to claim 23, Carney teaches a head-end apparatus for use in a cable network, comprising:

at least one server (Headend 22) having a software process running thereon, said software process being adapter to selectively download application to at least one client device ("...network head end...is where that AC applications are delivered and integrated with various network components so that they can be broadcast to subscribers..." page 4 paragraph 0051, "...AC 14 may be downloaded from the carousel..." page 4 paragraph 0052), said selective download of said application being based at least in part on information contained in a profile of said client device ("...The network application server 28 then fetches the AC package assets from the AP 26 and performs any necessary modifications to the files so the set-top-boxes 16 can access them..." page 4 paragraph 0051, "...Different versions of AC 14 may be provided for different platforms..." page 8 paragraph 0096: NOTE: In order provide different versions of AC 14 the providing system must know the profile/characteristics of the set-top-box).

Carney is silent with reference to said application being configured to detect and access records within a hardware registry disposed on said at least one client device, and control at least one hardware feature associated with said at least one client device via one or more software interfaces associated with the middleware of said at least one client device.

Meandzija teaches said application being configured to detect and access records within a hardware registry disposed on said at least one client device

(ResourceRegistry 355 page 18 lines 15 – 17, "...access to all set top resources by the set top applications is managed the resource manager 325..." page 24 lines 9 – 30, page 25 lines 1 – 4), and control at least one hardware feature associated with said at least one client device via one or more software interfaces associated with the middleware of said at least one client device ("...STAMP provides an apparatus and machinery for...secure controlled access of resources..." page 9 lines 17 – 30, page 16 lines 10 – 13, "...access to all set top resources by the set top applications is managed the resource manager 325..." page 24 lines 9 – 30, page 25 lines 1 – 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Carney with the teaching of Meandzija because the teaching of Meandzija would improve the system of Carney by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

38. As to claim 24, Carney teaches the apparatus of claim 23, wherein said application comprises a Digital Video Recorder (DVR)-enabled Java-based application ("...AC 14...reside as an applet..." page 4 paragraph 0052, "...AC 14 is,...a Java applet..." page 12 paragraph 0177), and said at least one hardware feature comprises Personal Video Recorder (PVR) functionality resident on said at least one client device ("...PVR applications..." page 12 paragraph 0184, "...Personal Video Recorder (PVR)..." page 14 paragraph 0224).

39. As to claim 25, Meandzija teaches the apparatus of claim 23, wherein said control of said at least one hardware feature is initiated by the middleware of said at least one client device ("...STAMP provides an apparatus and machinery for...secure controlled access of resources..." page 9 lines 17 – 30, page 16 lines 10 – 13, "...access to all set top resources by the set top applications is managed the resource manager 325..." page 24 lines 9 – 30, page 25 lines 1 – 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Carney with the teaching of Meandzija because the teaching of Meandzija would improve the system of Carney by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

40. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,552,450 B1 issued to Evans et al. in view of PCT No. WO 00/24192 issued to Meandzija.

41. As to claim 26, Evans teaches a computer-readable media for use in a network (LAN 180/WAN 182), said computer-readable media comprising a storage medium adapted to store a computer program thereon (Application 210 Col. 6 Ln. 20 – 43), said computer program adapted to run on a client device and to:

detect and access records within a hardware registry disposed on said client device (Application 210 Col. 6 Ln. 20 – 43, Operation 718 Col. 14 Ln. 30 – 38), said records providing at least information regarding:

one or parameters specific to at least one hardware feature associated with said client device (“...Each entry in the component register...” Col. 2 Ln. 22 – 28, “...device’s registration adds entries to the component register...” Col. 7 Ln. 22 – 25, Data Fields 512-520 Col. 8 Ln. 55 – 67, Col. 9 Ln. 1 – 9); and

one or more application programming interface (API) that can be used to access and manipulate said at least one hardware feature (Application 215 Col. 6 Ln. 20 – 31, “...application programming interface (API) is provided to enable an application to communicate with digital media components listed in the component register...” Col. 10 Ln. 48 – 67); and

control said at least one hardware feature associated with said client device via one or more API associated (Application 215 Col. 6 Ln. 20 – 31, “...application programming interface (API) is provided to enable an application to communicate with digital media components listed in the component register...” Col. 10 Ln. 48 – 67).

Evans is silent with reference to a cable network and control said at least one hardware feature associated with said client device via one or more API associated with a middleware of said client device.

Meandzija teaches a cable network (“...cable plant...” page 3 lines 7 – 13, “...cable...” page 53 lines 18 – 24) and control said at least one hardware feature associated with said client device via one or more API associated with a middleware of

said client device ("...middleware layer..." page 5 lines 21 – 24, Middleware 122 page 10 lines 13 – 15, STAMP Middleware Software 245 page 13 lines 8 – 22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Evans with the teaching of Meandzija because the teaching of Meandzija would improve the system of Evans by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes.

42. As to claim 27, Evans teaches the computer-readable medium of claim 26, wherein said storage medium comprises a hard disk drive (HDD) ("...computer readable medium..." page 54 lines 3 – 4).

43. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,487,534 B1 issued to Peterka et al. in view of U.S. Pub. No. 2004/0003400 A1 to Carney et al. as applied to claim 30 above, and further in view of U.S. Pat. No. 6,948,183 B1 issued to Peterka (hereinafter referred to as Peterka'183).

44. As to claim 31, Carney teaches the method of claim 30, wherein said act of selectively distributing comprises:

distributing said software application to substantially all of said plurality of client devices of said network ("...Different ACs 14 may be targeted for different set-top boxes 16..." page 4 paragraphs 0049/0051/0052).

Carney as modified by Peterka is silent with reference to selectively enabling only a subset of said plurality of client devices to utilize said software application in conjunction with said at least one plurality of hardware features based on at least one of a plurality of parameters.

Peterka'183 teaches selectively enabling only a subset of said plurality of client devices to utilize said software application in conjunction with said at least one plurality of hardware features based on at least one of a plurality of parameters ("..."...security policy data allows the downloadable applications of the software application function 120 to access certain receiver functionality, resources..." Col. 5 Ln. 61 – 67, "...the purpose of a security policy for such receivers...is provide some control over applications that can be downloaded to the receiver..." Col. 9 Ln. 56 – 65).

It would have been to one of ordinary skill in the art at the time the invention was made to modify the system of Carney and Peterka with the teaching of Peterka'183 because the teaching of Peterka'183 would improve the system of Carney and Peterka by providing security policy that controls which software application to be downloaded (Peterka'183 Col. 9 Ln. 56 – 65).

45. As to claim 32, Carney teaches the method of claim 31, wherein said act of selectively enabling comprises selectively embedding information within said at least

software application before distribution thereof (“...AC 14...is pre-loaded...” page 12 paragraph 0177).

It would have been to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka and Peterka’183 with the teaching of Carney because the teaching of Peterka’183 would improve the system of Peterka and Peterka’183 by eliminating the burden of installing software application on a set-top-box by a user.

46. As to claim 33, Carney as modified by Peterka teaches the method of claim 31, however it is silent with reference to said act of selectively enabling comprises configuring said software application such that it:

(i) accesses information relating to the individual one(s) of said plurality of client devices on which it is running; and

(ii) returns said information to a network agent, wherein said network agent accesses a database to determine if said utilizing should be enabled.

Peterka’183 teaches the method of claim 31, said act of selectively enabling comprises configuring said software application such that it:

(i) accesses information relating to the individual one(s) of said plurality of client devices on which it is running (Col. 3 Ln. 40 - 56, Block 320 Col. 11 Ln. 57 – 61); and

(ii) returns said information to a network agent, wherein said network agent accesses a database to determine if said utilizing should be enabled (Col. 3 Ln. 40 – 56, Block 320 Col. 11 Ln. 57 – 61).

It would have been to one of ordinary skill in the art at the time the invention was made to modify the system of Carney and Peterka with the teaching of Peterka'183 because the teaching of Peterka'183 would improve the system of Carney and Peterka by providing security policy that controls which software application to be downloaded (Peterka'183 Col. 9 Ln. 56 – 65).

47. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,487,534 B1 issued to Peterka et al. in view of U.S. Pat. No. 6,948,183 issued to Peterka et al. (hereinafter referred to Peterka'183).

48. As to claim 34, Peterka teaches Digital Video Recorder (DVR)-enabled Consumer Premise equipment (CPE) for use in a content-based network ("...terminal..." Col. 2 Ln. 17 – 24), wherein said DVR functionality is provided according to the method, comprising:

providing at least one hardware registry within said CPE, said hardware registry containing data relating to DVR hardware associated therewith ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13);

providing at least one software interface within said CPE, said at least one software interface being configured to interface between at least one application running on said CPE and said DVR hardware ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col.

3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13);

running said at least one application ("...downloadable applications..." Col. 3 Ln. 46 – 48, Col. 4 Ln. 23 – 25, Col. 6 Ln. 1 – 8);

discovering said at least one hardware registry using said at least software application ("...and application can learn what types of resources are available..." Col. 2 Ln. 54 – 56, Col. 23 – 25, Col. 6 Ln. 1 – 8), and

responsive to said discovering, controlling said DVR hardware using said at least application and said at least one software interface ("...an application can determine how many, and which, resources are available, and possibly access/use one or more of the available resources..." Col. 2 Ln. 57 – 60);

Peterka is silent with reference to said act of controlling comprising implementing one or more user-specified rules provided to said application relating to the playback of content from said DVR hardware.

Peterka'183 teaches said act of controlling comprising implementing one or more user-specified rules provided to said application relating to the playback of content from said DVR hardware ("...data defining a condition of the receiver..." Col. 3 Ln. 44 – 52, "...security policy data..." Col. 5 Ln. 61 – 67, Col. 9 Ln. 56 – 65: NOTE: accessing and using the functionalities provided by a set-top box/receiver includes playback of content).

It would have been to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka with the teaching of Peterka'183 because the

teaching of Peterka'183 would improve the system of Peterka by providing security policy that controls which software application to be downloaded (Peterka'183 Col. 9 Ln. 56 – 65).

49. As to claim 35, Peterka teaches the CPE of claim 34, wherein said at least one software interfaces comprise Application Programming Interfaces (APIs) ("...ResourceRegistry..." Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, "...Registry Package..." Col. 5 Ln. 8 – 13).

50. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,487,534 B1 issued to Peterka et al. in view of U.S. Pat. No. 6,948,183 issued to Peterka et al. (hereinafter referred to Peterka'183) as applied to claim 34 above, and further in view of U.S. Pub. No. 2004/0003400 A1 to Carney et al.

51. As to claim 36, Peterka as modified Peterka'183 are silent with reference to the CPE of claim 34, wherein said at least one software interface is associated with OpenCable Application Platform (OCAP)-compliant middleware running on said CPE, and said application comprises a Java-based application adapted to make calls to objects within said middleware.

Carney teaches at least one software interface is associated with OpenCable Application Platform (OCAP)-compliant middleware running on said CPE (Set-Top Box

Middleware 18 page 4 paragraph 0049, page 8 paragraph 0096), and said application comprises a Java-based application adapted to make calls to objects within said middleware (Application Client 14 page paragraph 0049, page 8 paragraph 0096).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka'183 and Peterka with the teaching of Carney because the teaching of Carney would improve the system of Peterka'183 and Peterka by providing a layer of glue software that runs on top of set-top box operating systems to create a consistent environment to run application software over a wide variety of set top boxes (Carney page 14 paragraph 0222).

52. As to claim 37, Peterka teaches the CPE of claim 36, wherein said at least hardware registry comprises a database having records each with a plurality of fields and each relating to a specific one of a plurality of hardware options, said plurality of hardware options including said DVR hardware (“...ResourceRegistry...” Col. 2 Ln. 52 – 60, Col. 3 Ln. 41 – 54, Col. 4 Ln. 18 – 34, Col. 6 Ln. 1 – 8, “...Registry Package...” Col. 5 Ln. 8 – 13).

53. **Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over PCT No. WO 00/24192 issued to Meandzija in view of “The case for Run-Time Types in Generic Java” authored by Allen et al. (pages 1-6).**

As to claim 38, Meandzija teaches a Consumer Premises Equipment (CPE) for use in a content-based network ("...network..." page 53 lines 18 – 24), said CPE having an application-accessible hardware registry database comprising a plurality of records each with a plurality of fields relating to one or more of a plurality of hardware features ("...Resource Manager..." page 16 lines 10 – 14, ResourceRegistry 355 page 18 lines 15 – 19, "...GenericDevice Class 805 page 24 lines 9 – 30, page 25 lines 1 – 9), said hardware registry comprising part of middleware resident on said CPE and being installed on said CPE after installation thereof in a consumer premises ("...STAMP provides an apparatus and machinery for...secure access of resources..." page 9 lines 17 – 25, page 13 lines 8 – 22).

Meandzija is silent with reference to a singleton.

Allen teaches a singleton ("...The Singleton Pattern..." page 2 section 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Meandzija with the teaching of Allen because the teaching of Allen would improve the system of Meandzija by providing means for allowing a new object to be added to a system without bringing the system down to compile a new interface, thus making it much easier to maintain system operations with little or no downtime.

54. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U PCT No. WO 00/24192 issued to Meandzija in view of "The case for Run-Time Types in Generic Java" authored by Allen et al. (pages 1-6) as applied to

claim 38 above, and further in view of U.S. Pat. .No. 7,552,450 B1 issued to Evans et al.

55. As to claim 39, Meandzija teaches the CPE of claim 38, wherein said fields comprise: (i) at least one field to identify the type or class of hardware ("...example classes:..." page 21 lines 19 – 30), (ii) at least one field having parameters that are specific to the hardware ("...Harddrive 902, DiskDrive 904, RAMDisk 906, SmartCard 908, DVD 910...MPEG 916, MPEG Video 918...IEEE284 Parallel,...IEEE394 946..." page 24 lines 21 – 30).

Meandzija as modified by Allen is silent with reference to at least one field having a reference to software interface that can be used to access and manipulate the relevant one(s) of said hardware.

Evans teaches a reference to software interface that can be used to access and manipulate the relevant one(s) of said hardware (Subfield 524-538 Col. 9 Ln. 1 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Meandzija and Allen with the teaching of Evans because the teaching of Evans would improve the system of Meandzija and Allen by providing a collection of subroutines or classes containing code and data that provide services to independent programs.

56. As to claim 40, Evans teaches the CPE of claim 39, said fields further comprising at least one field to uniquely differentiate hardware of the same type (Subfield 540-562 Col. 9 Ln. 5 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Meandzija and Allen with the teaching of Evans because the teaching of Evans would improve the system of Meandzija and Allen by providing additional information for identifying operational parameters associated with device capabilities (Evans Col. 9 Ln. 1 - 9).

57. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,487,534 B1 issued to Peterka et al. in view of U.S. Pat. No. 7,058,964 B2 issued to Khandelwal et al. as applied to claim 43 above, and further in view U.S. Pub. No. 2004/0103434 A1 to Ellis.

58. As to claim 44, Peterka as modified by Khandelwal are silent with reference to the method of claim 43, wherein said method further comprises simultaneously: storing a second at least portion of second entertainment content on said hard drive; and watching, via viewing apparatus operatively connected to said consumer premises device, third entertainment content.

Ellis teaches simultaneously storing a second at least portion of second entertainment content on said hard drive (Option 304 page 13 paragraph 0154); and

watching, via viewing apparatus operatively connected to said consumer premises device, third entertainment content (Option 304 page 13 paragraph 0154).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Peterka and Khandelwal with the teaching of Ellis because the teaching of Ellis would improve the system of Peterka and Khandelwal by providing collections of interacting computational processes that may be executed concurrently and allowing users to record and watch entertainment contents at the same time.

Response to Arguments

Although the final rejection of 11/24/09 has been withdrawn, Applicant's arguments regarding the Peterka and Peterka'183 prior arts have been fully considered but they are not persuasive.

Applicant argues in substance that (1) the Peterka prior art does not teach discovering software interfaces (API) with a software application, "hardware registry having a DVR functionality record identifying an API for interface with the DVR functionality", or "a device not associated with the cable network as claimed in claim 43.

The Examiner respectfully traverses Applicant's arguments:

As to point (1), the Peterka discloses an application programming interface (API) for managing resources in a Digital Television (DTV) Receiver/Terminal. The API provides a uniform mechanism for gaining/controlling access to resources, managing multiple resources of the same type, and accessing the individual resource's

management state and status. The resources may include, for example, **a tuner, a modem, a database, a plug-in module, a cable, a software module, a network interface card, or a conditional access module. The resources are monitored and controlled either locally at the terminal, or remotely, e.g., from a head-end or an uplink.** The API provides a resource package (40) for registering the available resources at the terminal, a resource state management package (30) for managing states of the resources, and a registry package (20) for storing objects that represent the resources (see Abstract).

These **resource objects are software objects as known from the field of object-oriented technology and functionally equivalent to the claimed software interface or API.** The objects represent the real resources at the terminal. A "ResourceRegistry" is a convenient place where an application can learn what types of resources are available, and retrieve a "ResourceType Manager" for a specific type of resource. **An application can discover or determine how many, and which, resources including associated software objects are available, and possibly access/use one or more of the available resources and associated software objects (Col. 2 Ln. 52 – 60).**

As described above, Peterka discloses that the resources include a tuner, a modem, a database, a plug-in module, a cable, a software module, a network interface card, and a conditional access module. **At least some of these resources are digital video recorder (DVR) functionalities or capabilities.** Secondly, the disclosed "DTV receiver" is an example of a digital video recorder.

As described above, Peterka discloses that the API provides a resource package for registering, the available resources at the terminal and could be monitored and controlled from a head-end or an uplink (Abstract). Also, on column 13 lines 30-35, the Peterka prior art discloses that the invention could be implemented on "virtually any type of network, including **cable** or satellite television broadband communication networks, local area networks (LANs), metropolitan area networks (MANs), wide area networks (WANs), internets, intranets, and the Internet, or combinations thereof". This admission by the Peterka prior art implies that the "terminal" and the associated resources is implemented "not associated" with or separate or remote from a cable network as claimed in claim 43.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES E. ANYA whose telephone number is (571)272-3757. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles E Anya/
Examiner, Art Unit 2194

cea.